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CROWN LENGTHENING FOR SMILE ENHANCEMENT A CASE REPORT

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ABSTRACT: The appearance of the gingival tissues surrounding the teeth plays an important role in esthetics of the anterior maxillary region affecting the symmetry and contour of natural or prosthetic dentition. Nowadays, patients also have a greater desire for esthetic results which influences the treatment choice. This case report presents a case of full mouth esthetic crown lengthening by electrosurgery. Procedure was performed under local anaesthesia and proved to be safe and efficient with no post-operative complication and healing was complete following 1 month.

KEYWORDS: Crown lengthening, Electrosurgery, Esthetics, Smile designing

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1.INTRODUCTION

Esthetically driven treatment planning relies heavily on the position of the teeth and the position and architecture of the soft tissue. [1] Studies have shown that a person's face is the prime source of determining physical attractiveness. [2] Research has demonstrated that a patient's smile can influence his or her perceived beauty. [3] Patients have stated that their teeth have the greatest impact on improving their physical appearance, and hence self-esteem. Therefore, dentists play a significant role in helping to improve their patients' psychological health. [4] The primary goal remains to maintain the dentition with a healthy intact dentogingival unit. However, periodontics has now entered the age of periodontal plastic surgery. [5] Often, an interdisciplinary treatment approach is

needed to address the different treatment parameters and provide the most esthetic outcome. Many different treatment options for altering gingival levels have been documented in the literature.[6] Regardless of the treatment modality selected, the correct diagnosis is paramount to the overall success of the treatment. One of the most frequently used treatment options for altering gingival levels is clinical crown lengthening. Clinical crown of the tooth is the distance from gingival margin to incisal edge or occlusal surface of the tooth.[7] A short clinical crown is defined as any tooth with less than 2 mm of sound, opposing parallel walls remaining after occlusal and axial reduction which might be because of subgingival caries, subgingival crown fractures, too short tooth crown for restoration retention, excess of gingiva and partially opened anatomical tooth crown [8]. The achievement and maintenance of ideal gingival margin levels and architecture constitute essential requirements for esthetic crown lengthening procedures. A conservative display of approximately 2-3 mm of the marginal gingival is generally considered as part of the ideal esthetic smile. In contrast excessive gingival display or shorter crown can severely compromise the appearance of the individual.[9] The use of a scalpel blade and ancillary mechanical armamentarium to sculpt the gingival margins may not be the most efficient or accurate surgical method available whereas electrosurgery can prove to be more efficient and patient friendly method.[10]Crown lengthening procedure invading the biologic width may result in a poor periodontal response.Biologic width is the zone of the root surface coronal to the alveolar crest to which the junctional epithelium and connective tissue are attached which is approximately 2.04 mm.[11]The mean biologic width is determined to be 2.04 mm, of which 1.07 mm is occupied by the connective tissue attachment and another approximate 0.97 mm is occupied by the junctional epithelium.[12] Reshaping the alveolar crest and reestablishing a normal fiber arrangement is a prerequisite for a complete functional recuperation of the periodontium.[13]

2. MATERIALS AND METHODS

A male patient aged 18 years reported to the Department of Periodontology with a chief complaint of excess gingival display in the upper and lower anterior region since 1 month. His medical history was non-contributory, with no history of smoking or alcohol consumption. Intraoral examination revealed shorter clinical crown height in all the teeth due to slight excess gingiva ,which was reddish pink in color with slightly soft and edematous interdental papilla (Fig. 1). On clinical examination, it was seen that the biological width of 2.04mm was maintained, therefore, there was no need of osseous recontouring in this case and thus removal of excess gingiva with proper gingival contouring with electrosurgery was planned.

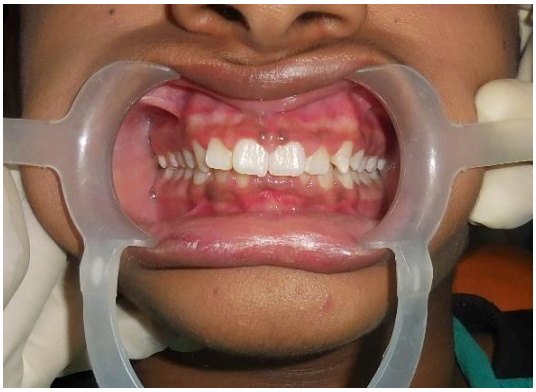

Fig. 1: Pre operative view

After adequate anaesthesia, excision of the tissue using electrocautery was done for lower anteriors, 1st and 2nd quadrants (Fig. 2) followed by gingival contouring (Fig. 3). Patient was given post-surgical instructions and was prescribed antibiotics (Oro CV 625mg) and analgesics (Dynaplus) for 5 days.

Fig. 2: Excision using electrosurgery

Fig. 3: Gingival contouring

3. RESULTS AND DISCUSSION

Patient showed uneventful healing following 3 months (Fig. 4). Esthetic results were obtained provingelectrosurgery to be advantageous over other treatment modalities for crown lengthening.

Fig. 4: 3 Months post-operative

In comparing the handling properties between conventional, laser, and electrocautery, it was observed that in conventional method excessive bleeding occurred with inadequate visibility in the operating field. Whereas in electrocautery the electrode cuts on its side as well as on its tip, angulated electrode meets the clinical need, cuts are made with ease when the device is set correctly, hemostasis is immediate and consistent, the wound is nearly painless and the tip is self disinfecting.[14]One of the disadvantage of electrocautery and laser over conventional is the damage produced by lateral heat. Lateral heat damage is the area of coagulation necrosis produced around the incision line due to unwanted heat production. Histologically, in a study it was it was found that the lateral heat damage in case of laser is 28.3-98 μm[15] and that in case of electrocautery is 0.12-0.31 mm wide. [16]

4. CONCLUSION

The establishment of ideal gingival margin architecture requires precise sculpting of the soft tissues. This is often easier to achieve with electrosurgery as there is less amount of bleeding and thus is more patient compliant. The crown lengthening procedure to remove the excess gingival display and giving a proper gingival contour to each tooth according to its anatomy offers a practical technique to dramatically improve patient esthetics.

5. CONFLICT OF INTEREST

No conflict of interest exists.

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